Claims

1. A pump comprising a rotor element and a stator element; a housing enclosing the elements and having an inlet for receiving pumped fluid, and downstream from the inlet, at least one port; and means for injecting, into the housing via said at least one port, fluid for acting on deposits located on the element surfaces to enable said deposits to be removed therefrom.

2. A pump according to Claim 1, comprising a plurality of said ports.

3. A pump according to Claim 2, wherein the ports are located radially about the housing.

4. A pump according to Claim 2 or 3, wherein the ports are located along the length of the rotor element.

5. A pump according to any preceding claim, wherein at least one of the ports includes a nozzle through which, in use, fluid is sprayed.

6. A pump according to Claim 5, wherein the nozzle is integrally formed within the port.

7. A pump according to any preceding claim, wherein the housing comprises a two skinned wall, a cavity being formed between an inner skin and an outer skin of the wall, through which, in use, a liquid may be passed.

8. A pump according to claim 7, wherein the inner skin of the housing provides the stator element.

9. A pump according to any preceding claim, wherein the pump is a screw pump comprising two threaded rotor elements.

10. A screw pump according to Claim 9, wherein the at least one port is located after the first two complete turns of thread of the rotor elements from the inlet.

11. A pump according to any of claims 1 to 8, wherein the pump is a claw pump.

12. A pump according to any of claims 1 to 8, wherein the pump is a Roots pump.

13. A pump according to any preceding claim, wherein the fluid is a liquid.

14. A pump according to any preceding claim, wherein the fluid is a solvent for dissolving particulates collected on the rotor element when the pump is in use.

15. A pump according to any of Claims 1 to 12, wherein the fluid is a gas.

16. A pump according to Claim 15, wherein the fluid is steam.

17. A pump according to any of Claims 1 to 15, wherein the fluid comprises a reactive substance for reacting with the particulates.

18. A pump comprising a rotor element and a stator element; a housing enclosing the elements and having at least one port; and means for injecting, into the housing via said at least one port, a fluid comprising a reactive substance for reacting with particulates located on the element surfaces to enable said particulates to be removed therefrom.

19. A pump according to Claim 17 or 18, wherein the fluid comprises a halogen, such as fluorine.

20. A pump according to any of Claims 17 to 19, wherein the fluid comprises one of ClF_3, F_2, and NF_3.

21. Chemical vapour deposition apparatus comprising a process chamber and a pump according to any preceding claim for evacuating the process chamber, wherein, in use, the deposits are a by-product of a chemical vapour deposition process.

22. A method of managing deposits within a pump, the pump comprising a rotor element and a stator element, and a housing enclosing the elements and having an inlet for receiving pumped fluid, and downstream from the inlet, at least one port, the method comprising injecting, into the housing via said at least one port, fluid for acting on deposits located on the element surfaces to enable said deposits to be removed therefrom.

23. A method according to Claim 22, wherein fluid is injected from a plurality of said ports.

24. A method according to Claim 23, wherein the ports are located radially about the housing.

25. A method according to any of Claims 22 to 24, wherein the ports are located along the length of the rotor element.

26. A method according to any of Claims 22 to 25, wherein the fluid is a liquid.

27. A method according to any of Claims 22 to 26, wherein the fluid is a solvent for dissolving particulates collected on the rotor element when the pump is in use.

28. A method according to any of Claims 22 to 25, wherein the fluid is a gas.

29. A method according to Claim 26, wherein the fluid is steam.

30. A method according to any of Claims 22 to 29, wherein the fluid comprises a reactive substance for reacting with the particulates.

31. A method for managing deposits within a pump, the pump comprising a rotor element and a stator element, and a housing enclosing the elements and having at least one port; the method comprising injecting, into the housing via said at least one port, a fluid comprising a reactive substance for reacting with particulates located on the element surfaces to enable said particulates to be removed therefrom.

32. A method according to Claim 30 or 31, wherein the fluid comprises a halogen, such as fluorine.

33. A pump according to any of Claims 30 to 32, wherein the fluid comprises one of ClF_3, F_2, and NF_3.

34. A method according to any of Claims 22 to 33, wherein the fluid is injected at predetermined intervals during operation.

35. A method according to any of Claims 22 to 34, comprising the steps of:

(a) monitoring the performance of the pump;

(b) determining the accumulation of deposits on the internal element surfaces based on the monitored performance;

(c) calculating a fluid flow rate required to compensate for the accumulation of deposits as determined in step (b); and

(d) adjusting the flow rate of injected fluid to reflect the calculated value from step (c).

36. A method for managing deposits within a pump mechanism by introducing fluid suitable for dissolving, diluting or otherwise disengaging deposits which have accumulated on the internal working surfaces of the pump, the method comprising the steps of (a) monitoring the performance of the pump, (b) calculating the rate of accumulation of deposits on the internal working surfaces of the pump based on the monitored performance, (c) calculating a fluid flow rate required to compensate for the accumulation of deposits as determined in step (b), and (d) effecting an adjustment of the flow rate of fluid being delivered to the rotor to reflect the calculated value from step (c).

37. A method according to Claim 35 or 36, wherein the pump is inoperative as the fluid is delivered, the method comprising the step of applying torque to rotors of the pump to overcome any remaining impeding force.

38. A method according to Claim 37, comprising the steps of introducing a thermal fluid into a cavity provided within the housing of the pump, the cavity encircling the rotors, and heating the thermal fluid in the cavity to raise the temperature of the fluid and the deposits sufficiently to release the deposits prior to the torque applying step.

39. A computer program which, when installed on a computer, causes the computer to perform the method of any of claims 22 to 38.

40. A computer readable carrier medium which carries a computer program as claimed in claim 39.

41. A computer readable carrier medium according to claim 40, wherein the medium is selected from; a floppy disk, a CD, a mini-disc or digital tape.